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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 07/11/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,075

Applicant(s)

PUTTER, HERMANN

Examiner

Edna Wong

Art Unit

1753

-- **Th MAILING DATE of this communication appears on th cov r sh et with th correspond nc address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other:

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the word "said" is used in lines 4-6. Correction is required. See MPEP § 608.01(b).

Please note that the abstract in this case is from the PCT WO 01/21857 A1 publication.

Claim Rejections - 35 USC § 112

Claims **1-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

lines 3-12, it is unclear what the positive, active steps of the process are.

It is suggested that the claim language be amended to recite positive, active

process steps.

lines 3-4, it appears that the "furan or a substituted furan or a mixture of two or more thereof" is the same as the at least one furan derivative (A) recited in claim 1, lines 1-2. However, it is unclear if it is.

If it is not, then what is the difference between the furan or a substituted furan or a mixture of two or more thereof and the at least one furan derivative (A)?

line 8, it appears that "this C-C double bond" is the same as the C-C double bond recited in claim 1, line 5. However, it is unclear if it is.

If it is, then it is suggested that the word "this" be amended to the word -- the --.

lines 8-10, "the hydrogen obtained in parallel at the cathode in step (i)" lacks antecedent basis.

lines 9-10, the word "or" is used twice in the Markush group. It is unclear what specie is in the alternative and what specie is exclusive.

Claim 2

lines 1-2, it appears that "an undivided electrolysis cell" is the same as the electrolysis cell recited in claim 1, line 11. However, it is unclear if it is.

Claim 3

line 2, it appears that the "at least one hydrogenation catalyst" is the same as the at least hydrogenation catalyst recited in claim 1, lines 11-12. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "with".

lines 2-3, the phrase "in particular with a noble metal" is indefinite.

Claim 4

lines 1-2, the phrase "in particular the noble metal" is indefinite.

lines 1-2, it is unclear if this claim limitation is a positive, active process step.

It is suggested that the claim language be amended to recite a positive, active process step.

Claim 5

lines 1-2, it is unclear if this claim limitation is a positive, active process step.

It is suggested that the claim language be amended to recite a positive, active process step.

Claim 6

lines 1-3, it is unclear if this claim limitation is a positive, active process step.

It is suggested that the claim language be amended to recite a positive, active process step.

Claim 10

line 2, it appears that "a hydrogenation catalyst" is the same as the at least hydrogenation catalyst recited in claim 3, line 2. However, it is unclear if it is.

If it is, then it is suggested that the word "a" be amended to the word -- the --.

Claim 11

lines 1-2, "the alkoxylated furan compound (B)" lacks antecedent basis.

Claim 13

line 2, it appears that the "at least one hydrogenation catalyst" is the same as the at least hydrogenation catalyst recited in claim 1, lines 11-12. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "with".

line 2, the phrase "in particular with a noble metal" is indefinite.

Claim 14

line 2, it appears that the "a hydrogenation catalyst" is the same as the hydrogenation catalyst recited in claim 4, line 1. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "with".

line 2, it appears that the "cathode" (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 14 and the cathode in claim 1?

Claim 15

lines 2, it appears that the "a hydrogenation catalyst" is the same as the hydrogenation catalyst recited in claim 5, line 1. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word "with".

line 2, it appears that the "cathode" (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 15 and the cathode in claim 1?

Claim 16

lines 2, it appears that the “a hydrogenation catalyst” is the same as the hydrogenation catalyst recited in claim 6, line 1. However, it is unclear if it is.

If it is, then it is suggested that the word -- the -- be inserted after the word “with”.

line 2, it appears that the “cathode” (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 16 and the cathode in claim 1?

Claim 17

lines 1-2, “the at least one electrode which is in contact with a hydrogenation catalyst” lacks antecedent basis.

line 2, it appears that the “cathode” (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 17 and the cathode in claim 1?

Claim 18

lines 1-2, “the at least one electrode which is in contact with a hydrogenation

catalyst" lacks antecedent basis.

line 2, it appears that the "cathode" (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 18 and the cathode in claim 1?

Claim 19

lines 1-2, "the at least one electrode which is in contact with a hydrogenation catalyst" lacks antecedent basis.

line 2, it appears that the "cathode" (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 19 and the cathode in claim 1?

Claim 20

lines 2, it appears that the "a hydrogenation catalyst" is the same as the at least one hydrogenation catalyst recited in claim 13, line 2. However, it is unclear if it is.

If it is, then it is suggested that the word "a" be amended to the word -- the --.

line 2, it appears that the "cathode" (both occurrences) is the same as the cathode recited in claim 1, line 9. However, it is unclear if it is.

If it is not, then what is the difference between the cathode in claim 20 and the cathode in claim 1?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ponomarev et al.** ("Furan Compounds. XIII. Electrolytic Methoxylation of Furan Substances", Zhurnal Obshchei Khimii (1960), Vol. 30, pp. 976-981).

Ponomarev teaches a process for the electrolytic transformation of at least one furan derivative (A) [= 2,5-dimethoxy-2-(2-acetoxyethyl)-2,5-dihydrofuran was prepared from *appropriate furan derivatives*] in an electrolysis circuit (= a cylindrical electrolysis vessel with Ni cathode and C anode) comprising the steps of:

(i) electrolytically oxidizing the furan derivative (A) to give:

(a) at least one furan derivative (B) [= 2,5-dimethoxy-2-(2-acetoxyethyl)-2,5-dihydrofuran] which has a C-C double bond in the five-membered heterocyclic ring, and

(b) hydrogen (= 2,5-dimethoxy-2-(2-acetoxyethyl)-2,5-*dihydrofuran*); and
(ii) hydrogenating the double bond using hydrogen (= 2,5-dimethoxy-2-(2-acetoxyethyl)-*tetrahydrofuran*),

wherein the process is carried out in an electrolysis cell (= a cylindrical electrolysis vessel with Ni cathode and C anode) in which at least one hydrogenation catalyst (= Raney nickel) is present (abstract).

The electrolysis cell is undivided (= a cylindrical electrolysis vessel with Ni cathode and C anode) [abstract].

Ponomarev does not teach using the hydrogen obtained in parallel at the cathode in step (i) or hydrogen fed to the electrolysis circuit or electrocatalytic hydrogenation.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the process of Ponomarev by hydrogen fed to the electrolysis circuit or electrocatalytic hydrogenation because it appears that hydrogen fed from any outside conventional source for the hydrogenation would have been suitable in carrying out the process since it would be doing the same endeavor in providing hydrogen for hydrogenation.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

Claims **3-6, 10 and 14-16** define over the prior art of record because the prior art does not teach or suggest a process as claimed in claim 1, wherein at least one electrode is in contact with at least one hydrogenation catalyst, in particular with a noble metal.

Claims **7 and 17** define over the prior art of record because the prior art does not teach or suggest a process as claimed in claim 1, wherein at least one of the electrodes used is a gas diffusion electrode.

Claims **8-9 and 18-19** define over the prior art of record because the prior art does not teach or suggest a process as claimed in claim 1, wherein at least one of the electrodes used is a composite comprising at least one conventional electrode material and at least one material for a gas diffusion electrode.

Claim **11 and 12** define over the prior art of record because the prior art does not teach or suggest a process as claimed in claim 1, wherein the alkoxyated furan compound (B) produced in step (i) is reacted in step (ii) to form at least one ring-opened butane derivative.

Claims **13 and 20** define over the prior art of record because the prior art does not teach or suggest a process as claimed in claim 2, wherein at least one electrode is in contact with at least one hydrogenation catalyst, in particular with a noble metal.

The prior art does not contain any language that teaches or suggests the above. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 3-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

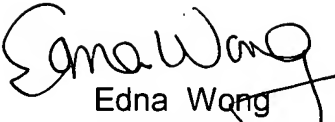
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.

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Edna Wong
Primary Examiner
Art Unit 1753

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July 10, 2003